ON SOME NEW GENERA OF NEARCTIC CHRYSOMELINAE (CHRYSOMELIDAE)

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Before a revision of the genus *Calligrapha* can be attempted, it is necessary to restrict it to such a degree as to retain in it only those species which agree with the genotype in the majority of their critical characteristics. It is another problem, not dealt with here, to analyze the relationships of *Calligrapha* and to define its generic differences, if there are such, with the *Zygogramma-Zygospila* complex.

There is no satisfactory definition of *Calligrapha* and the comparison of the critical species with the genotype, namely *Calligrapha polyspila* Germar, from Southern Brazil and Eastern Argentina is still the most reliable way to elucidate their taxonomy. By this method, several well-known North American "*Calligraphae*" need to be removed from that genus and to be placed in some other unrelated ones.

There will be probably some objections to changing a familiar name such as *Calligrapha similis,* as listed in the catalogues and in most collections, into an almost unknown one such as *Bidensomela bidenticola.* The reason for taking some species out of *Calligrapha* and considering them as belonging in independent genera is not, however, the fun of creating names and making taxonomy more difficult, but the aim to attain more homogeneous units and the better understanding of the relationships of the insects studied.

An explanation of the fact that several Nearctic species were wrongly placed in *Calligrapha* and are still in this genus, in spite of being fairly common and well known may be the circumstances that most of the older species of "*Calligrapha*" were described as *Chrysomela* olim. When this last genus became restricted to a smaller unit, these species were transferred to *Calliagrapha* merely because they are yellow with dark markings, but they were not compared with the typical *Calligrapha* of Central and South America; thus, the meaning of the genus *Calligrapha* became more and more confused by not keeping the danger of misplacing genericly different species in mind.

It is to be noted that, while typical *Calligrapha* from Central and South America feed on Malvaceae, most of the species approaching the northern limits of the genus feed on quite unrelated plants. An ecological difference may thus be added to the purely morphological ones considered in the present paper.

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All the new genera here described present the following characters and belong in the tribe DORYPHORINI:

Epipleurae ciliated at apex; anterior coxal cavities open behind; anterior prosternal margin without oral prolongation; pronotum without swollen lateral margin; claws simple and separated; antennae colored.

BIDENSOMELA new genus

(Figure 1, 2, 29, 30)

Type species: *Chrysomela similis* Rogers

Craneal sutures visible. Antennae somewhat dilated and pubescent from 7th segment. Elytra with 10½ rows of punctures; rows 6 and 7 somewhat irregular in the middle. Elytral pattern consisting of dark longitudinal bands on yellow ground. Median lobe of male genitalia with a short spicula on each side and a short median prolongation.

This genus seems rather closely allied to *Calligrapha* but may be distinguished by the different type of male genitalia and elytral punctures and pattern.

Its only known species feeds on Compositae and I consider it to consist of two subspecies as follows:

Discal elytral band only with lateral notch. From the North and West.. **B. bidenticola bidenticola**

Discal elytral band including a yellow longitudinal one in space between rows 4 and 5. From the South.. **B. bidenticola meridionalis**

BIDENSOMELA BIDENTICOLA subspecies BIDENTICOLA (Brown)

(Figure 1)

Chrysomela similis Rogers, 1854:35, pl. 1, f. 13; Suffrian, 1858:275, pl. 2, f. 13; Stal, 1865:258 (nec Müller, 1776).

Calligrapha similis Crotch, 1873:48, 49; Linell, 1896:198.

Polyspila similis Weise, 1916:43.

Polyspila similis v. *intermedia* Achard, 1923:69.

Polyspila similis v. *hilaris* Achard, 1923:69.

Calligrapha bidenticola Brown, 1945:122.

Known from Canada and United States.

Bidensomela bidenticola meridionalis new subspecies

(Figure 2)

Differs from typical race in the elytral pattern which is of same color as head and pronotum and with a longitudinal yellow band in space between rows 3 and 4, as shown in figure.

FLORIDA: Enterprise (holotype and 6 paratypes Hubbard & Schwarz leg. in USNM and Monrós), Crescent City (1 paratype in USNM). Less typical specimens from Jacksonville and Capron (USNM).—Specimens from Texas, Mississippi, Alabama and some ones from Virginia and Maryland represent an intermediate form between the typical race and the present one.

COREOPSOMELA new genus

(Figures 3, 12, 14, 15, 16, 17, 18, 22, 23, 24)

Type species: *Calligrapha elegans* ssp. *californica* Linell

Frontal suture obliterated, clypeal ones poorly marked. Mandibles moderately projecting and little angular at external margin. Last segment of maxillary palpi shorter and thinner than proceding one. Antennae somewhat dilated and pubescent from 6th segment. Elytra with 10½ well impressed rows of punctures, the 6th and 7th somewhat irregular. Without denticle between claws. Elytral pattern consisting of black longitudinal stripes on yellow ground. Median lobe of male genitalia without lateral spiculae; its apex subtruncate and with a median prolongation.

This monobasic genus is found in Southern Canada and United States; its only species feeds on *Compositae*.

The combination of characters described distinguishes it from all other known Chrysomelinae. From *Calligrapha* it may be separated especially by the different type of male genitalia, the shape of the mandibles, the obliterated frontal suture, the elytral punctures and pattern and the general facies, as well as a different host. Although I do not attempt to establish its relationships in the present paper, it does not seem to be closely allied to *Calliagrapha-Zygogramma* complex.

Two geographic races may be distinguished, as follows:

Discal band of elytra entire or weekly notched. From the East.. C. californica coreopsivora

Discal black band divided by an oblique yellow transversal one. Known only from Los Angeles County, California.. C. californica californica

COREOPSOMELA CALIFORNICA subspecies CALIFORNICA (Linell)

(Figure 4)

Calligrapha elegans ssp. *californica* Linell, 1896:198.

Polyspila elegans ab. *californica* Weise, 1916:39.

COREOPSOMELA CALIFORNICA ssp. COREOPSIVORA (Brown)

(Figure 3)

Chrysomela elegans Olivier, 1807:532, pl. 6, f. 92; Rogers, 1854:35, Suffrian, 1858:276; Stal, 1865:259 (nec Gmelin, 1789).

Calligrapha elegans Crotch, 1873:48; Linell, 1896:198.

Polyspila elegans Weise, 1916:39.

Calligrapha californica coreopsivora Brown, 1945:122.

ACALLIGRAPHA new genus

(Figures 5, 11, 20, 27, 28)

Type species: *Chrysomela praecelsis* Rogers.

Only clypeal sutures visible. Antennae somewhat dilated and pubescent from 7th segment. Sides of pronotum subparallel, slightly constricted behind middle. Elytra more convex than in allied genera, with 10½ well impressed rows, the space between 4 and 8 occupied by irregular punctures. Claws with a small denticle between them. Elytral pattern consisting of longitudinal brown bands on yellow ground. Median lobe of male genitalia without lateral spiculae and with a projecting median process.

This monobasic genus differs from *Calligrapha* especially by the shape of the male genitalia and the elytral pattern and punctures as well as the general facies.

ACALLIGRAPHA PRAECELSIS (Rogers)

(Figure 5)

Chrysomela praecelsis Rogers, 1854:35, pl. 1, f. 14—Suffriaan, 1858:276, pl. 2, f. 14; Stal, 1865:259.

Calligrapha praecelsis Crotch, 1873:48; Linell, 1896:198; Brown, 1945:123.

Polyspila praecelsis Weise, 1916:42.

Occurs in Canada and Central United States and Brown mentions it on *Convolvulaceae.*

CALLIGRAMMA new genus

(Figures 6, 10, 19, 21, 31, 32)

Type species: *Chrysomela cephalanti* Schwarz.

Craneal sutures visible but not deep. Antennae somewhat dilated from 6th segment, pubescent from 7th. Elytra with 10 regular and deep rows of punctures and without shortened scutellar one. Without denticle between claws. Pattern consisting of alternate brown and yellow bands. Male genitalia with a small spicula on each side, obliquely directed backwards; its apex subacute.

Differs from *Calligrapha* in the elytral punctures and pattern and the lack of scutellar row. From *Zygogramma-Zygospila* it may be distinguished by the separate claws and from *Desogramma* by the absence of denticle between the claws. From all the allied genera it is easily distinguished by the absence of shortened scutellar row of punctures.

CALLIGRAMMA CEPHALANTI (Schwarz)

(Figure 6)

Chrysomela cephalanti Schwarz, 1878:366.

Calligrapha cephalanti Linell, 1896:198.

Polyspila cephalanti Weise, 1916:39.

Known only from Florida (Capron, Coral Gables, Homestead, Tampa).

Achard (1923) suggests that this species may represent nothing but a minor variation of *Bidensomela bidenticola,* from which it differs, however, in several important characters.

GRAPHICALLO new genus

(Figures 7, 8, 9, 25, 26)

Type species: *Chrysomela lunata* Fabricius.

Craneal sutures visible. Antennae somewhat dilated and pubescent from 6th segment. Elytra with 10½ rows, of which 5 to 8 confused and irregular. Claws without denticle. Elytral pattern consisting of dark longitudinal bands on yellow ground. Median lobe of male genitalia with a median apical short projection and a short spicula on each side at apex.

I base the present genus on the type species which seems closely allied to *Calligrapha* but differs in the shape of the male genitalia and the elytral punctures and pattern.

The species may be split in two geographical races, as follows:

Discal brown band of elytra with a single yellow inclussion immediately outside 4th row; punctures between rows 9 and 4 completely irregular. Eastern subspecies........................ **G. lunata lunata**

Discal brown pattern consisting of three more or less parallel longitudinal bands separated by yellow ones. Punctures between rows 9 and 4 tending to be arranged in rows. Northern and Western subspecies........................ **G. lunata hybrida**

GRAPHICALLO LUNATA subspecies LUNATA (Fabricius)

(Figure 7)

Chrysomela lunata Fabricius, 1787:69; Gmelin, 1790:1677; Olivier, 1790:699; Fabricius, 1792:318; Fabricius, 1801:435; Olivier, 1807: 517, pl. 6, f. 75; Stal, 1865:260.

Chrysomela brunnea Thunberg, 1787:43, f. 7.

Calligrapha lunata Crotch, 1873:48; Linell, 1896:198.

Polyspila lunata Weise, 1916:40.

Calligrapha lunata mediorupta Achard, 1923:69.

Calligrapha lunata bowditchi Achard, 1923:69, footnote.

Calligrapha lunata medionota Schaeffer, 1933:478 (nomen nudum)

Calligrapha lunata lunata Brown, 1945:122.

GRAPHICALLO LUNATA subspecies HYBRIDA (Say)

(Figure 9)

Chrysomela hybrida Say, 1825:449; Rogers, 1854:34, pl. 1, f. 11; Suffrian, 1858:272, pl. 2, f. 11.

Calligrapha lunata v. *latevittata* Achard, 1923:69.

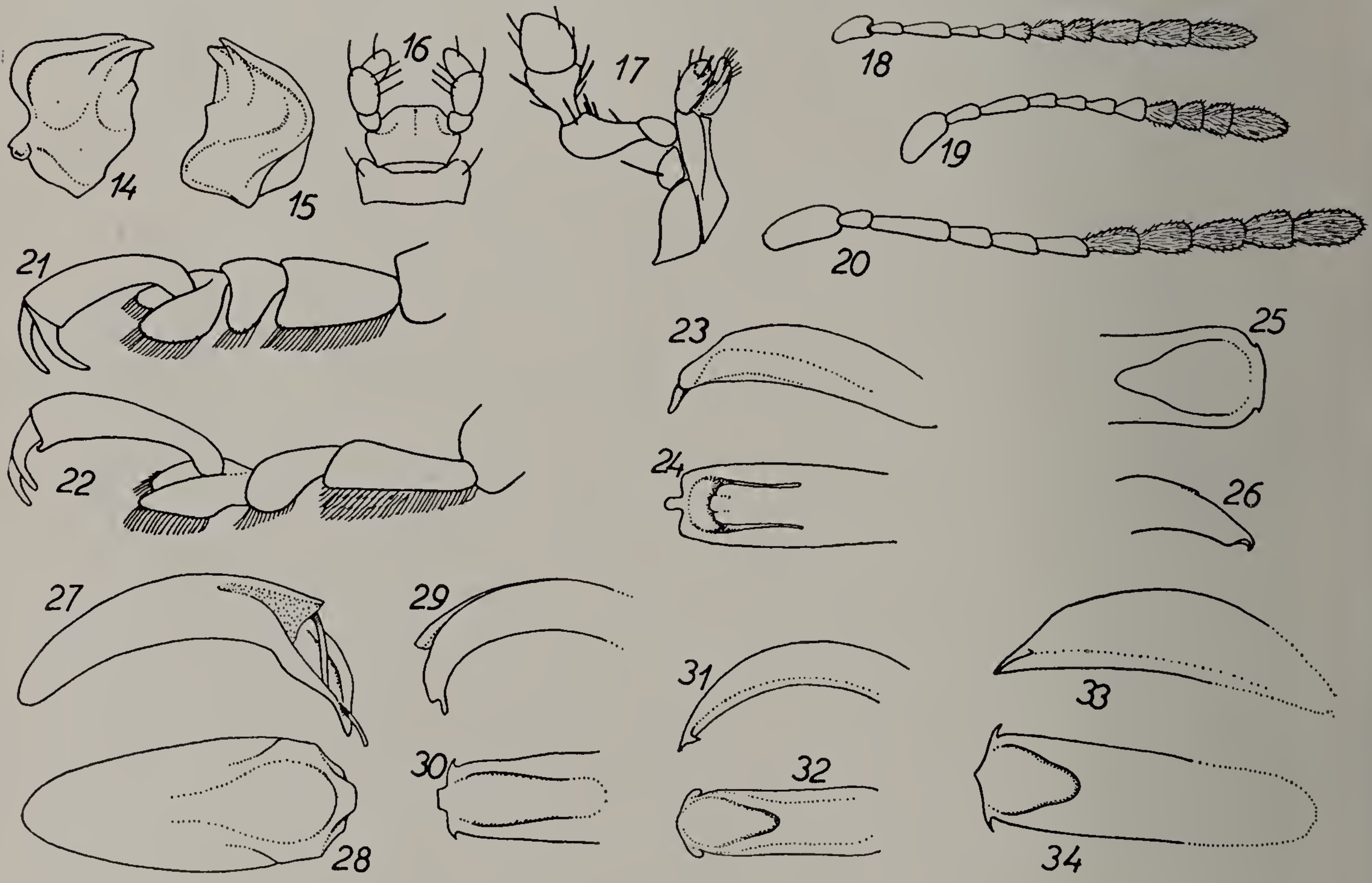
Calligrapha lunata v. *lativittis* Schaeffer, 1933:478.

Calligrapha lunata hybrida Brown, 1945:122.

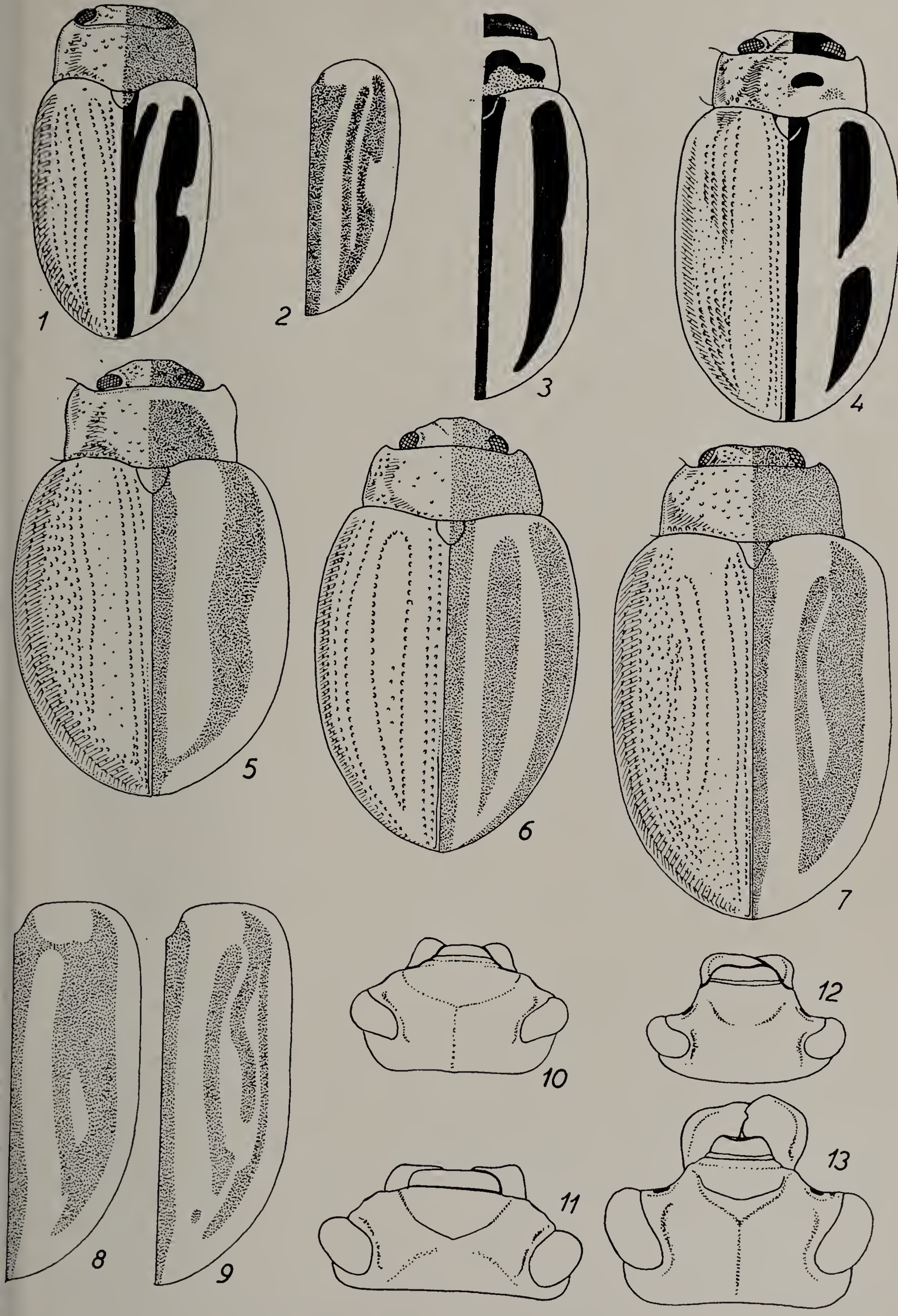
SHORT KEY TO DISTINGUISH *Calligrapha* AND ALLIED GENERA

1. Claws connate........................ 2
Claws separated........................ 3

2. Elytral punctures regular .... **Zygogramma** Chevrolat
Elytral punctures irregular (like Calligrapha) .... **Zygospila** Achard
3. Elytra with scutellar row of punctures 4
Elytra without scutellar row .... **Calligramma** new genus
4. Median lobe of male genitalia without lateral spiculae 5
Median lobe with lateral spiculae 6
5. With denticle between the claws; elytra more convex than pronotum .... **Acalligrapha** new genus
Without denticle between the claws; elytral convexity follows pronotal one .... **Coreopsomela** new genus
6. Median lobe acute at apex and without apical truncate projection .... **Calligrapha** Chevrolat
Median lobe with an apical projection 7
7. Spiculae on apical projection .... **Graphicallo** new genus
Spiculae on sides of median lobe itself .... **Bidensomela** new genus



Figs. 14 to 17. Mouth parts of *Coreopsomela californica.* Fig. 18. Antenna of *Coreopsomela californica.* Fig. 19. *of Calligramma cephalanti.* Fig. 20. of *Acalligrapha praecelsis.* Fig. 21. Tarsi of second pair of legs of *Calligramma cephalanti.* Fig. 22. of *Coreopsomela californica.* Figs. 23 to 24. Median lobe of male in *Coreopsomela californica,* lateral and superior. Figs. 25 and 26. *Graphicallo lunata.* Figs. 27 and 28. *Acalligrapha praecelsis,* lateral and under side. Figs. 29 and 30. *Bidensomela bidenticola.* Figs. 31 and 32. *Galligramma cephalanti.* Figs. 33 and 34. *Calligrapha polyspila.*



(For explanation of figures, see page 60)

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Fig. 1. *Bidensomela bidenticola* (Brown). Fig. 2. *B. b. meridionalis* n. ssp., typical specimen from Enterprise (Florida). Fig. 3. *Coreopsomela californica coreopsivora* (Brown). Fig. 4. *C. c. californica* (Linell), holotype in USNM. Fig. 5. *Acalligrapha praecelsis* (Rogers). Fig. 6. *Calligramma cephalanti* (Schwarz), holotype in USNM. Fig. 7. *Graphicallo lunata* (Fabricius). Fig. 8. Another elytral pattern. Fig. 9. *G. lunata hybrida* (Say). Fig. 10. Head and cephalic sutures in *Calligramma cephalanti.* Fig. 11. in *Acalligrapha praecelsis.* Fig. 12. in *Coreopsomela californica.* Fig. 13. in *Calligrapha polyspila* Germar, type species of the genus *Calligrapha.*